

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

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| Applicant's or agent's file reference 2156-301A | FOR FURTHER ACTION | See item 4 below |
| International application No. PCT/US2004/042543 | International filing date (<i>day/month/year</i>) 20 December 2004 (20.12.2004) | Priority date (<i>day/month/year</i>) 30 January 2004 (30.01.2004) |
| International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237 | | |
| Applicant MACDERMID PRINTING SOLUTIONS, LLC | | |

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).
2. This REPORT consists of a total of 8 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

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|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input checked="" type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

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| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70 | Date of issuance of this report 31 July 2006 (31.07.2006) Authorized officer <div style="text-align: right; font-weight: bold;">Nora Lindner</div> e-mail: pt02@wipo.int |
|---|--|

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

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REC'D 29 APR 2005
 WIPO PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

| | | |
|--|---|---|
| Applicant's or agent's file reference 2156-301A | | Date of mailing (day/month/year) 27 APR 2005 FOR FURTHER ACTION See paragraph 2 below |
| International application No. PCT/US04/42543 | International filing date (day/month/year) 20 December 2004 (20.12.2004) | Priority date (day/month/year) 30 January 2004 (30.01.2004) |
| International Patent Classification (IPC) or both national classification and IPC IPC(7): G03F 7/095, 7/24, 7/40 and US Cl.: 430/273.1, 300, 306, 271.1 | | |
| Applicant MACDERMID PRINTING SOLUTIONS, LLC. | | |

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.
For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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|--|--|
| Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230 | Authorized officer Cynthia Hamilton Telephone No. 571-272-1700 |
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/42543

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

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Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|--------------------|-----|
| Novelty (N) | Claims <u>1-26</u> | YES |
| | Claims <u>NONE</u> | NO |
| Inventive step (IS) | Claims <u>NONE</u> | YES |
| | Claims <u>1-26</u> | NO |
| Industrial applicability (IA) | Claims <u>1-26</u> | YES |
| | Claims <u>NONE</u> | NO |

2. Citations and explanations:

Please See Continuation Sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US04/42543

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

Claim 18 is objected to under PCT Rule 66.2(a)(iii) as containing the following defect(s) in the form or contents thereof: Claim 18 ends with a semicolon instead of a period.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the questions whether the claims are fully supported by the description, are made:

Claims 2 and 7 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claims are indefinite for the following reason(s): There is no antecedent basis for "the hollow cylindrical base layer" cited in claims 2 and 7 which depend respectively on claims 1 and 6. What is found is "a hollow cylindrical support layer". There is no mention of "base" before such reference in claims 2 and 7.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

V. 2. Citations and Explanations:

Claims 1-26 meet the criteria set out in PCT Article 33(4), and thus have printing plate industrial applicability because the subject matter claimed can be made or used in industry.

Claims 1-10, 14 and 26 lack an inventive step under PCT Article 33(3) as being obvious over KANGA in view of FAN and CUSHNER et al. KANGA teaches applicants' photosensitive printing element and method of making a hollow cylindrical printing sleeve with the exception of the formation of a hollow cylindrical support. However, KANGA disclosed as prior art FAN. FAN teaches that a cylinder can be used as a support and CUSHNER et al teach the formation of FAN systems on cylindrical seamless cylinders. KANGA teaches the need when backflashing the plates such as those of FAN that a substrate of 85-95% absorbing actinic radiation is needed in order to get an even floor formed for good printing. FAN teaches the advantage of avoiding the need for a negative being formed along with all the steps involved by using the ablatable coverlayers directly imageable with laser. CUSHNER et al teaches the formation of seamless printing cylinders to avoid the bumps formed when solid plates are adhered to cylinders to form an arcuate surface. With respect to applicants' claims 1-10, 14 and 26, the formation of the plates of KANGA into the seamless cylinder of CUSHNER et al using the ablatable materials of FAN (1) in order to avoid all the unnecessary steps involved in forming a negative for imaging the photopolymerizable layer and (2) to obtain a more perfect printed image without a bump would have been obvious to one of ordinary skill in the art.

Claim 11 lacks an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the immediately preceding paragraph and further in view of GUSH et al, WEBER et al, GELBART, and OHBA et al. What is not taught in the prior art of the preceding paragraph is one source actinic radiation being collimated. The imaging of relief plates with collimated light sources is well known in the relief printing plate art in order to form a finer image. WEBER et al teach this. GUSH et al teach the use of collimated light. GELBART teaches using a reflector to collimate the exposure light. OHBA et al teach using collimator lens to image a printing plate on a cylinder. Thus with respect to applicants' method in claim 11, in order to obtain finer images and to avoid light scatter, the use of a collimated light source to image the cylinders set forth in the prior art of the preceding paragraph would have been obvious to one of ordinary skill in the art.

Claim 12 lacks an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the preceding paragraph just above the immediately preceding paragraph and further in view of KITAMURA et al. There is no disclosure in KANGA, FAN or CUSHNER et al to exposing the entire surface of the photosensitive printing element to actinic radiation at one time. However, such is known in the art as taught by KITAMURA et al. With respect to the method of applicants' claim 12, the use of overall exposure to actinic radiation at one time would have been obvious to workers of ordinary skill in the art to save time in imaging the surface of the cylinder.

Claim 13 lacks an inventive step under PCT Article 33(3) as being obvious over KANGA in view of FAN and CUSHNER et al as applied to claim 6 above and further in view of KITAMURA et al as applied to claim 12 above and further in view of PLAMBECK and FERREE et al. The combination of KANGA, FAN and CUSHNER et al in view of KITAMURA et al do not teach the use of the collimators having first and second opposing major faces and comprising at least one cell that extends from the first major face to the

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

second major face, wherein at least one surface substantially absorbs actinic radiation incident upon the surface and actinic radiation passes through the collimator before reaching the photopolymerizable printing sleeve. However, PLAMBECK taught that if lines formed were broadened excessively because of their fineness then the use of a light controlling baffle, e.g. egg-crate baffle, could be made to eliminate those rays below the minimum desired angle. An egg crate baffle is described by FERREE et al as a device for eliminating the glare and having intersecting baffle plates parallel to the focal axis and preferably of considerable width. The baffle plates preferably have dull finished surfaces, i.e. non-light reflecting surfaces. Thus, considering applicant's claim 13, with respect to the desire to obtain a finer image in the formation of relief plates the use of a device such as the egg crate baffle as taught by PLAMBECK to control the angle of light, i.e. collimate the light, in imaging the cylinders of FAN and CUSHNER would have been obvious to workers of ordinary skill in the art.

Claim 15 lacks an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the second paragraph above as applied to claim 14 and further in view of PLAMBECK and FERREE et al. As to the methods and plates set forth by the combination of FAN, KANGA and CUSHNER et al above, the use of a collimated light source is not taught. However, PLAMBECK taught that if lines formed were broadened excessively because of their fineness, then the use of a light controlling baffle, e.g. an egg-crate baffle, could be used to eliminate those rays below the minimum desired angle. FERREE et al describe an egg-crate baffle as a device to eliminate the glare. The baffle of FERREE et al has intersecting baffle plates, preferably of considerable width, parallel to the focal axis. The baffle plates preferably have dull finished surfaces, i.e. non-light reflecting surfaces. Thus, with respect to the desire to obtain a finer image when needed in the formation of relief plates by the use of known egg crate baffles, such as that of FERREE et al, to control the angle of light, i.e. collimate the light, as taught by PLAMBECK in processing the printing elements of KANGA as formed into the cylinders of FAN by the seamless technique of CUSHNER et al would have been obvious to workers of ordinary skill in the printing plate formation industry.

Claims 16-17 and 21-25 lack an inventive step under PCT Article 33(3) as being obvious over FAN in view of CUSHNER et al further in view of PLAMBECK and FERREE et al. FAN teaches that a cylinder can be used as a support but makes no mention of forming a seamless cylinder or using collimated light for any of the radiation steps. CUSHNER et al teach the formation of FAN systems on cylindrical seamless cylinder. To avoid the bumps formed when solid plates are adhered to cylinders to form an arcuate surface. PLAMBECK teaches that if lines formed were broadened excessively in a relief plate because of the fineness of the lines then the use of a light controlling baffle, e.g. an egg-crate baffle, could be made to eliminate those rays of light below the minimum desired angle. FERREE et al describe an egg-crate baffle as a device to eliminate the glare. The baffle of FERREE et al has intersecting baffle plates, preferably of considerable width, parallel to the focal axis. The baffle plates preferably have dull finished surfaces, i.e. non-light reflecting surfaces. Thus, with respect to the desire to obtain a finer image when needed in the formation of relief plates by the use of known egg crate baffles, such as that of FERREE et al, to control the angle of light, i.e. collimate the light, as taught by PLAMBECK in processing the printing cylinders of FAN formed in the seamless fashion set forth by CUSHNER et al or the cylinders of CUSHNER et al made in the fashion of FAN would have been obvious to workers of ordinary skill in the printing plate formation industry.

Claims 17-20 lack an inventive step under PCT Article 33(3) as being obvious over the prior art as applied in the immediately preceding paragraph and further in view of KANGA. The methods made obvious by FAN and CUSHNER et al in view of PLAMBECK and FERREE et al as applied to claim 16 teach all but the use of a substrate with 85-95% blocked light for back exposure for forming a floor in a relief printing plate. However, KANGA teaches such a support with materials like that of FAN in order to obtain a more even floor to yield better-printed images. With respect to applicants' claims 17-20, the use of the supports of KANGA as the support of FAN while using collimated light with an egg crate baffle as needed for fine line imaging would have been obvious to workers of ordinary skill in the printing plate formation industry to obtain finer printed images by the formation of a more even floor being formed upon backflash exposure due to the blocked light substrate of KANGA being present.